

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
20 January 2005 (20.01.2005)

PCT

(10) International Publication Number
WO 2005/005498 A1

(51) International Patent Classification⁷: **C08F 210/06**,
4/642, 4/76, 210/06

(21) International Application Number:
PCT/EP2004/051262

(22) International Filing Date: 28 June 2004 (28.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
03102024.1 4 July 2003 (04.07.2003) EP

(71) Applicant (for all designated States except US): **ATO-
FINA RESEARCH** [BE/BE]; Zone Industrielle C, B-7181
Seneffe (Feluy) (BE).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **RAZAVI, Ab-
bas** [IR/BE]; 35, Domaine de la Brisée, B-7000 Mons
(BE). **CARPENTIER, Jean-François** [FR/FR]; 5, Al-
lée des Lilas, F-35690 ACIGNE (FR). **KIRILLOV,**
Evgueni [RU/DE]; Institut Für Organische Chemie,
Friedrich-Alexander Universität Erlangen-Nürnberg, 42,
Henkestrasse, 91054 Erlangen (DE).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: **PROPYLENE-STYRENE COPOLYMERISATION PROCESS**

(57) Abstract: Provided is a method for the production of a copolymer of styrene and propylene, which method comprises copoly-
merising styrene and propylene in the presence of a metallocene catalyst, wherein the metallocene catalyst comprises a metallocene
having the either formula (I): $R''(CpRm)(FluR'n)MQ_2$ wherein Cp comprises a cyclopentadienyl ring; Flu comprises a fluorenyl
ring; R'' comprises a structural bridge imparting stereorigidity to the component; each R is the same or different and is an organic
group; m is an integer of from 0-4; each R' is the same or different and is an organic group; n is an integer of from 0-8; M is a metal
atom from group IVB of the Periodic Table or is vanadium; and each Q is a hydrocarbon having from 1-20 carbon atoms or is a
halogen; or formula (II): $R''(FluR'n)XR^5MQ_p$ (II) wherein R(FluR'n), R'', M and Q are as defined here-above; R⁵ is hydrogen or a
hydrocarbyl group having from 1-20 carbon atoms; X is a heteroatom from group 15 or 16 of the Periodic Table.



WO 2005/005498 A1